

FORM PTO-1390
(REV 12-29-99)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371

SUNDS-112

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

09/530394

INTERNATIONAL APPLICATION NO.
PCT/SE98/00941INTERNATIONAL FILING DATE
20 MAY 1998PRIORITY DATE CLAIMED
23 JUNE 1997TITLE OF INVENTION
BINDING MEANSAPPLICANT(S) FOR DO/EO/US
Tomas EDSTROM

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☒ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☒ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). (Executed)
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98. w/PTO-1449, 3 references
12. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☐ A FIRST preliminary amendment.
☐ A SECOND or SUBSEQUENT preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information:

Petition for Revival of an International Application for Patent Designating the U.S. Abandoned Unintentionally under 37 CFR 1.137(b) with Information Statement Concerning Unintentional Delay
Copy of International Application as published
Copy of International Preliminary Examination Report
One (1) Sheet of Drawings

EXPRESS MAIL LABEL NO. EL 479159843US

DATE. April 26, 2000

<p>17. <input checked="" type="checkbox"/> The following fees are submitted:</p> <p>BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :</p> <p>Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$970.00</p> <p>International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO..... \$840.00</p> <p>International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$690.00</p> <p>International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$670.00</p> <p>International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) \$96.00</p> <p style="text-align: center;">ENTER APPROPRIATE BASIC FEE AMOUNT =</p>				<p>CALCULATIONS PTO USE ONLY</p>	
				\$ 970.00	
<p>Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).</p>				\$	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	6 - 20 =		X \$18.00	\$	
Independent claims	1 - 3 =		X \$78.00	\$	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$260.00	\$ 260.00	
TOTAL OF ABOVE CALCULATIONS =				\$ 1,230.00	
<p>Reduction of 1/2 for filing by small entity, if applicable. A Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28).</p>				\$	
SUBTOTAL =				\$ 1,230.00	
<p>Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).</p>				\$	
TOTAL NATIONAL FEE =				\$ 1,230.00	
<p>Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property</p>				\$	
TOTAL FEES ENCLOSED =				\$ 1,230.00	
				Amount to be refunded:	\$
				charged:	\$

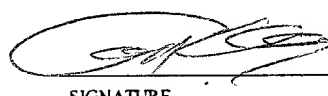
- a. ☐ A check in the amount of \$_____ to cover the above fees is enclosed.
- b. ☒ Please charge my Deposit Account No. 12-1095 in the amount of \$1,230.00 to cover the above fees. A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 12-1095. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO

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 600 South Avenue West
 Westfield, NJ 07090

Telephone: 908 654-5000
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SIGNATURE

Arnold H. Krumholz

NAME

25,428

REGISTRATION NUMBER

1/ PRTS

526 Rec'd PCT/PTO 26 APR 2000

Binding means

This invention relates to a means for binding wire around objects, for example bales of fiber material.

Pulp bales are bound around both individually and in the form of stacked units comprising a certain number of bales, usually six or eight bales. Such a unit load has a weight of between one and two tons. The strength of the wire binding tying together the unit load, therefore, is very important from a safety point of view, because several persons may stand near the load while it is being lifted by its wires. The equipment used for tying the knot in a bound wire loop and the knot itself, therefore, are subject of very comprehensive safety regulations and stringent safety controls.

The binding means comprises a unit for feeding the wire from a wire magazine through an openable wire guide bar around the object.

The feeding unit is used also for stretching the wire. The means comprises further a twining member, which includes a unit for locking the wire end, a unit for tying a wire knot, a cutting unit and a unit for projecting the knot.

The wire guide bar extends around the object to be bound and guides the wire at its feed. The wire is fed through the twining member around the object to be bound. When the free end of the wire arrives for the second time at the twining member, the wire is stopped and retained in the locking unit, whereafter the wire is stretched by reversing the feeding unit. The wire guide bar is thereby opened, and the wire is tightened around the object to be bound. The knot is tied, the wire is cut and projected out of the twining member.

In order to achieve an optimum binding and knot-tying result, the correct length of wire

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must be fed. The wire normally is fed by means of a feeding wheel, which rotates through a predetermined number of revolutions and is driven, for example, by an electric servomotor. The feeding wheel is used also for stretching the wire.

In the wire magazine, on the path of the wire from the wire magazine to the feeding wheel, and in the wire guide bar, however, the wire can jam, whereby sliding can be caused between the feeding wheel and wire. Problems can also arise by variations in the wire quality, in its thickness and hardness, which result in sliding between the feeding wheel and wire.

The sliding creates problems during the feeding. The positions of the wire then cannot be determined, which may cause breakdowns. When then for avoiding sliding the contact pressure from the counter-pressure rolls is increased, there is risk of wire deformation whereby the feed of the wire through the different units in the binding means is made difficult.

The present invention offers a solution of the aforesaid problems, in that the measuring of the fed wire length takes place in a separate measuring means, which is not affected by sliding in the feeding wheel.

The characterizing features of the invention are apparent from the attached claims.

The invention is described in greater details in the following, with reference to the accompanying drawings illustrating an embodiment thereof.

Fig. 1 shows a binding machine.

Fig. 2 shows the measuring means.

The binding means is of the type shown and described in the patent SE 380 496 and in the patent application SE 9303380-1.

The binding means comprises a stand 1 on which the various units are arranged. A feeding unit 2 is provided to feed binding wire 3 in the form of steel wire from a wire magazine around an object 4 to be bound and thereafter to stretch the wire.

A measuring means 5 is provided for continuously measuring the fed wire length. The measuring is carried out without the measuring means 5 feeding the wire.

The measuring means 5 preferably comprises a runner 6, which abuts the wire 3, and a preferably compressed-air loaded dolly roll 15 to ensure that the wire 3 and runner 6 are in contact with each other.

The runner 6 has a contact surface 16, preferably with substantially straight profile. The measuring result is thereby less depending on the wire quality and varying contact pressure.

The runner 6 is coupled to a rotation meter 7, for example an inductive transmitter or a potentiometer, but preferably a pulse transmitter, which measures how much the runner 6 has rolled and, thereby, how much wire has passed the measuring means 5.

A wire guide bar 8 extends about the object to be bound 4. A twining member 9 comprises a guide bar for guiding the wire through the twining member, a unit for locking the wire end, a unit for tying a wire knot, a unit for cutting the wire, and a unit for projecting the completely tied knot.

The entire binding means preferably is movable so that it can be placed in a transport path for the objects to be bound and upon demand easily be exchanged.

The feeding unit 2 comprises guide wheels 10, about which the wire 3 runs, and a driven feeding wheel 11, to which counter-pressure rolls 12 abut. The feeding wheel 11 preferably is driven by an electric servomotor 13.

At the start of the binding machine the end of the wire 3 is positioned with the help of the values from the measuring means 5 to a pre-determined starting position for a binding sequence.

At the wire feed, the feeding unit 2 is driven by the electric servomotor 13, so that a pre-determined length of wire 3 is fed about the object to be bound 4, and the wire end arrives at the locking unit in the twining member 9. The fed wire length is measured by the measuring means 5. The wire end is retained in the twining member 9.

The wire stretching takes place thereafter by reversing the servomotor 13 of the feeding unit 2 until the wire has been stretched down onto the object to be bound 4, and the speed of the wire is zero. The wire movement is measured, for example, by a pulse transmitter in the servomotor 13, but preferably by the measuring means 5.

The wire guide bar 8 is openable and provided with grooves for the wire 3. During the wire feed, the bar 8 is held in closed position by piston/cylinder units 14, preferably pneumatic ones. At the wire stretching, the wire guide bar 8 is opened by the piston/cylinder units 14.

After the wire stretching, the units of the twining member 9 for twining, cutting and projecting the completed wire knot start to operate.

After the cutting, the wire is drawn back a predetermined length to the starting position for the next binding sequence by the feeding unit 2, which is controlled by values from the measuring means 5. The binding means is now ready for a new binding operation.

The correct length of fed wire is ensured in that the wire 3 free of sliding drives the runner 6 of the measuring unit which via the rotation meter 7 transfers the measuring values for controlling the wire feed. Since the moment of inertia in the runner 6 is small in relation to transferred moment between the wire 3 and runner 6, no sliding occurs between the wire 3 and runner 6. The accuracy and operational safety of the binding means can in this way be increased. If in spite thereof sliding should occur, this would only mean that a little too much wire is fed, which does not negatively affect the operational safety.

The invention, of course, is not restricted to the embodiments shown, but can be varied within the scope of the claims with reference to the descriptive part and drawing.

Claims

1. A means for binding wire around an object, comprising a feeding unit (2) with a feeding wheel (11) for feeding and stretching the wire (3), characterized in that it comprises a separate measuring means (5) for continuously measuring the fed wire length (3), where the measuring is carried out without wire (3) being fed by the measuring means (5).
2. A means as defined in claim 1, characterized in that the measuring means (5) comprises a runner (6) with a contact surface (16), which abuts the wire (3).
3. A means as defined in claim 2, characterized in that the contact surface (16) has a substantially straight profile.
4. A means as defined in claim 2 or 3, characterized in that the measuring means (5) comprises a dolly roll (15) for ensuring that the runner (6) and wire (3) abut each other.
5. A means as defined in claims 2, 3 or 4, characterized in that the runner (6) is coupled to a rotation meter (7).

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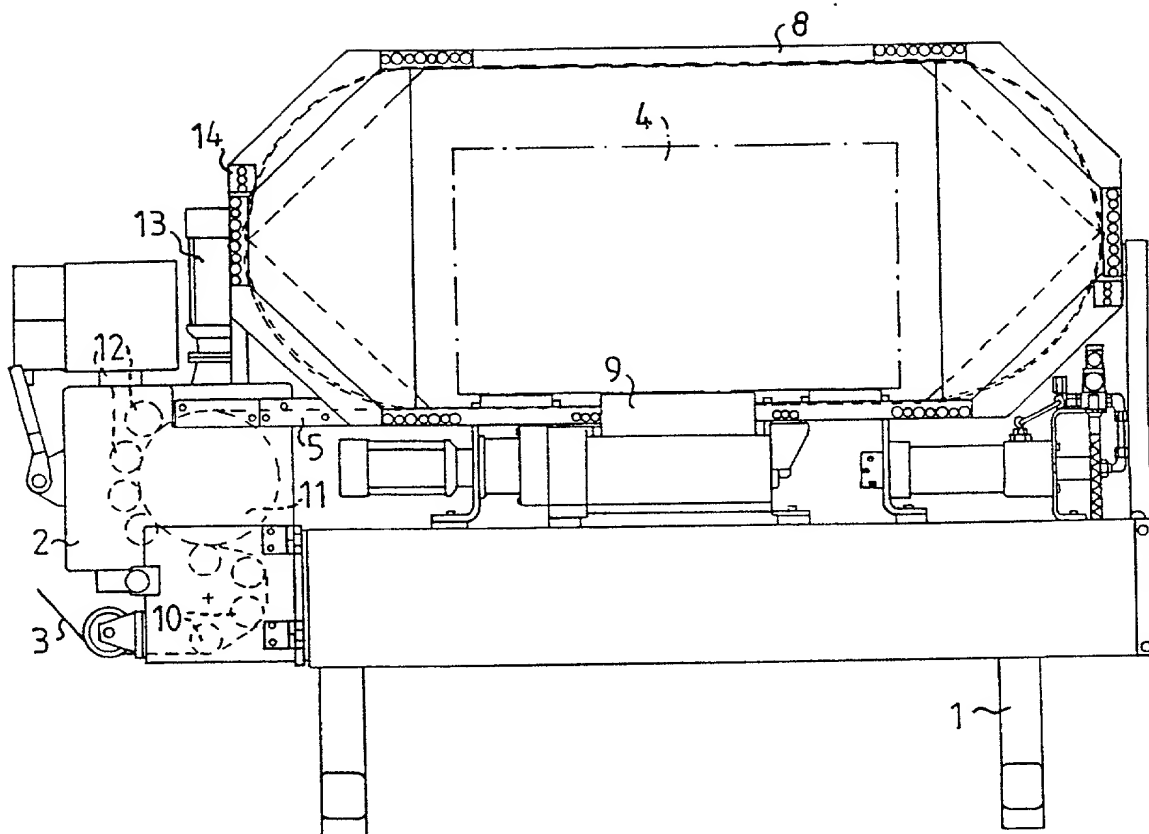


FIG. 1

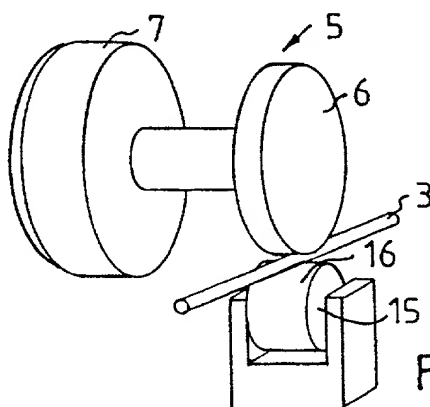


FIG. 2

DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION

ATTORNEY'S DOCKET NO.: SUNDS 3.3-112

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: _____

BINDING MEANS _____, the specification of which

☐ is attached hereto

☒ was filed on 20 May, 1998 as United States Application Number or PCT International Application Number PCT/SE98/00941 and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119(a)-(d) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below any foreign application for patent or inventor's certificate, or any PCT international application having a filing date before that of the application on which priority is claimed:

PRIOR FOREIGN APPLICATION(S)			
COUNTRY	APPLICATION NUMBER	DATE OF FILING (month, day, year)	PRIORITY CLAIMED
Sweden	9702406-1	06.23.1997	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
			YES <input type="checkbox"/> NO <input type="checkbox"/>
			YES <input type="checkbox"/> NO <input type="checkbox"/>

LISTING OF FOREIGN APPLICATIONS CONTINUED ON PAGE 3 HEREOF ☐ YES ☒ NO

I hereby claim the benefit under Title 35, United States Code, § 119(c) of any United States provisional application(s) listed below:

Application Number: _____ Filing Date: _____

Application Number: _____ Filing Date: _____

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

U.S. Parent Application Serial Number: _____ Parent Filing Date: _____ Parent Patent No.: _____

U.S. Parent Application Serial Number: _____ Parent Filing Date: _____ Parent Patent No.: _____

PCT Parent Number: _____ Parent Filing Date: _____

LISTING OF US APPLICATIONS CONTINUED ON PAGE 3 HEREOF: ☐ YES ☒ NO

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

Lawrence I. Lerner, Reg. No. 18,516; Sidney David, Reg. No. 22,788; Joseph S. Littenberg, Reg. No. 20,832; Arnold H. Krumholz, Reg. No. 25,428; William L. Mentlik, Reg. No. 27,108; John R. Nelson, Reg. No. 28,573; Roy H. Wepner, Reg. No. 28,350; Stephen B. Goldman, Reg. No. 28,512; Paul H. Kochanski, Reg. No. 28,880; Marcus J. Millet, Reg. No. 28,241; Bruce H. Sales, Reg. No. 32,783; Daniel H. Bobis, Reg. No. 18,894; Peter J. Butch III, Reg. No. 32,293; Keith E. Gilman, Reg. No. 32,137; Robert B. Cohen, Reg. No. 32,788; Arnold B. Dompier, Reg. No. 29,738; Michael H. Teschner, Reg. No. 32,882; Gregory S. Gewirtz, Reg. No. 38,522; Jonathan A. David, Reg. No. 38,494; Shawn P. Foley, Reg. No. 33,071; Thomas M. Palisi, Reg. No. 36,629; Michael J. Doherty, Reg. No. 40,592; John P. Maldjian, Reg. No. P-41,987.

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DECLARATION -- Page 2

ATTORNEY DOCKET NO. SUNDS 3.3-112

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor (given name, family name): Tomas Edström

Tomas Edström/
Inventor's signature [Signature] Date 2000-03-21

Residence: ANKARSVIK, Sweden Citizenship: Sweden

Post Office Address: Vedettbåtsvägen 11, S-865 51 Ankarsvik

Full name of second joint inventor, if any (given name, family name): _____

Second Inventor's signature _____ Date _____

Residence: _____ Citizenship: _____

Post Office Address: _____

Full name of third joint inventor, if any (given name, family name): _____

Third Inventor's signature _____ Date _____

Residence: _____ Citizenship: _____

Post Office Address: _____

Full name of fourth joint inventor, if any (given name, family name): _____

Fourth Inventor's signature _____ Date _____

Residence: _____ Citizenship: _____

Post Office Address: _____

Full name of fifth joint inventor (given name, family name): _____

Fifth Inventor's signature _____ Date _____

Residence: _____ Citizenship: _____

Post Office Address: _____

Full name of sixth joint inventor, if any (given name, family name): _____

Sixth Inventor's signature _____ Date _____

Residence: _____ Citizenship: _____

Post Office Address: _____

Full name of seventh joint inventor, if any (given name, family name): _____

Seventh Inventor's signature _____ Date _____

Residence: _____ Citizenship: _____

Post Office Address: _____

Full name of eighth joint inventor, if any (given name, family name): _____

Eighth Inventor's signature _____ Date _____

Residence: _____ Citizenship: _____

Post Office Address: _____